

MERCURY (Hg) AND CADMIUM (Cd)
CONCENTRATIONS OF TILAPIA (*Oreochromis*
***niloticus*) MUSCLE TISSUES COLLECTED FROM**
THREE MAJOR RESERVOIRS IN MONARAGALA
DISTRICT, SRI LANKA

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ABSTRACT

Aquatic ecosystems are under threat of pollution by anthropogenic causes which result accumulation of toxic contaminants, especially toxic trace metals such as Hg and Cd in water and aquatic organisms. Consumption of contaminated fish by toxic trace metals can generate negative health consequences to human. Tilapia (*Oreochromis niloticus*) is the most popular and abundant food fish species found in inland reservoir fishery catch of Sri Lanka. Hence, this study investigated Hg and Cd concentrations of collected tilapia fish muscle samples from three major reservoirs which provide a great contribution to the inland fisheries production in Monaragala district. A total number of 28 tilapia fish were randomly collected from Hambegamuwa (n = 8), Urusita wewa (n = 10) and Weheragala (n = 10) reservoirs during September to October 2016. Each sample was individually subjected to trace metal analysis using Atomic Absorption Spectrophotometry (AAS) subsequent to the microwave accelerated acid digestion. The results revealed that the mean Hg and Cd concentrations in muscle tissues on wet weight basis were Not Detected (ND) & 0.02 ± 0.03 mg/kg in Urusita wewa, 0.14 ± 0.14 mg/kg & 0.01 ± 0.01 mg/kg in Weheragala reservoir and 0.02 ± 0.03 mg/kg & 0.03 ± 0.03 mg/kg in Hambegamuwa reservoir, respectively. Recorded trace metal concentrations were below the maximum permissible levels (Hg < 0.5 mg/kg & Cd < 0.05 mg/kg) as specified in Sri Lankan and European Union standards for food fish. The calculated Probable Weekly Intake (PWI) levels for Hg and Cd (0.0003 & 0.0001 mg/kg of body weight per week, respectively) via dietary intake of tilapia fish were well below the Provisional Tolerable Weekly Intake (PTWI) levels (0.275 Hg & 0.385 Cd in mg/kg of body weight per week) which have been jointly established by WHO and FAO. In conclusion, tilapia fish caught from these reservoirs do not pose a risk on human health by Hg and Cd toxicity through consumption.

Keywords: Tilapia (*Oreochromis niloticus*), Muscle tissues, Mercury (Hg), Cadmium (Cd), Monaragala district